An Roinn Turasoireachta, Iascaigh Agus Foraoiseachta

THE SEA TROUT YEAR 1985

By

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SUMMARY

The wet year of 1985 yielded good catches to the rod and to commercial engines. Salmon were taken in reasonable numbers in the drift nets although only

small numbers of sea trout were captured by this method. The wet angling season is thought to have provided productive fishing conditions contributing largely to a 22% increase over the previous year's landings of sea trout.

Specimen sea trout were registered in greater numbers than expected. The majority had a total (i.e. freshwater and marine) age of eight years and fish of this cohort had been recorded in very strong numbers as .1+ trout in 1980. Thus specimen sea trout in 1985 are thought to represent a strong year class rather than any other kind of disturbance of the established cyclical pattern of occurrence of these trout.

Climatic criteria used as indicators of conditions favourable to trout production appear to have altered direction from their decline since the late 1970s and a recovery would seem to be underway. Accompanying the lengthening of growing season, an increase in the numbers of sea run trout appears to be taking place although stocks are still very low. Sufficient data have been collected from the Currane fishery in Co. Kerry to enable a comparison with Burrishoole in Co. Mayo and correspondence between stock structures in both is demonstrated.

FISHERIES BOARDS' FIGURES

The estimates of total catch were requested on a fishery district basis at the end of the 1985 season from the Regional Fisheries Boards and such information as has been received is given in Table 1. As is generally the case statistics are not available from every fishery district. In keeping with previous years the figures should be interpreted as a single observer's estimate of the numbers of fish captured in the area with which he has greatest familiarity. Although the returns should be regarded as indications of catch rather than accurate totals they should be comparable with similar data collected in the previous year.

According to the data presented in Table 1, some districts had a decline in sea trout catches, but the main producers of this fish, on the western seaboard all showed an increase. Overall, the catch increased on the previous year's by 22%.

ROD AND LINE RETURNS

Angling returns from the 1985 season, received by the Department by early February 1986 amounted to 610. The results of their scrutiny are set out in Table 2 where they are compared with similar data from the

year before. Weights are expressed in lb., this being the unit most commonly used and best appreciated by fishermen. Elsewhere in the Leaflet the metric system is used.

In 1984 the ratio of the relative effort spent on salmon and sea trout indicated that a change in emphasis towards the smaller species might be taking place. This changed in 1985 when, as in the period 1980-1983 inclusive, the ratio of sea trout to salmon fishing days, varied between 0.43 and 0.50. The average weight of sea trout caught was marginally less in 1985 than in 1984 and overall the weight of sea trout per rod day was 53% greater.

INTERPRETATION OF OFFICIAL ROD LICENCE ANGLING RETURNS

Deriving accurate catch figures from small numbers of anglers' returns is complicated by a number of factors. Several studies report that only the more successful anglers make returns and there are indications that the sub-total reported by these may constitute a very large proportion of the total catch. Hence extrapolation of total catch from small numbers of returns is likely to overestimate the yield of a particular fishery. The method of arrival at estimates of catch used in this series of leaflets is to obtain an average yield from the total number of licences scrutinised and multiply this by

the total number sold. The advantage of this kind of figure is its comparability with similar estimates in the earlier years of the century. To demonstrate the kind of variation which can occur however the characteristics of information contained in four types of angling licence are shown in Table 3.

An improvement in migratory salmonid catches in 1984 is supported by the data in Table 3. Most categories of licence yielded an increase in salmon and this was particularly marked in the A and B types.

The sea trout yield per licence also increased in all types sold. Once again, the P type licences, which over the late season, proved particularly productive.

COMMERCIAL CATCH RETURNS

Analyses of drift and draft net catches are set out for the five years to 1985 in Table 4. As in previous years these returns have not come representatively from all fishery regions - nor from every district within the regions which made returns. No returns were received from the Western Region in time for inclusion.

The wet summer of 1985 is thought to have influenced catches more than any other factor.

Draft nets reported fair returns of salmon and they did reasonably well with trout.

SPECIMEN SEA TROUT

In previous reports in this series it has been argued that these fish occur in cylical fashion. The recent trend in their production has been downward and this was expected to continue in 1985. Contrary to expectation, eleven specimen sea trout were recognised in that season. Because this number was greater than predicted, the scales of the fish were examined and their ages are given in Table 5. Scales from one of the listed fish were not located; another was identified by this writer as a freshwater trout.

The results of the analysis of this sample are in general agreement with what is already known about specimen sea trout. The freshwater age of the majority of the sample is two years. The majority also have a sea life of six years. Previous leaflets in this series show the age structure of the anglers' catch in Waterville. In 1980 there was a particularly strong cohort of one-sea-winter fish. That year was the only one in the series monitored in which one sea winter trout outnumbered post-smolt in the Waterville catch. The majority of the specimen trout taken in 1985 came from this catchment, as is usually the case.

While it is possible to corroborate a cyclical trend on a year to year basis, one can only speculate on an emerging pattern. The significance of the 1985 total is not known but it could be an aberration of declining growing seasons generating alternatively strong and weak juvenile descents to the sea.

CLIMATIC CRITERIA

The total number of growing days (judged as the number of days on which the dry bulb temperature at the Shannon Synoptic Station reached or exceeded 5.6° C) was 292 in 1985. This is higher than in any of the preceding three years and approaches the length of growing season last recorded in 1981. It must be stressed that the indicator to the length of growing season used here is regarded as a crude approximation of what is happening. That said, the steep decline in growing season which has been observed in recent years appears to have temporarily, at least, halted. Whether it will be reversed, remains to be seen. Any significant and sustained improvement in the length of growing season should, however, result in a recovery in sea trout stocks whose numbers are at present depressed. The three year (to 1985 inclusive) total of 742 growing days is still 249 days short of its equivalent for the three years inclusive to 1973.

MIGRATIONS AT BURRISHOOLE

As in other years details of trout migrations at the Salmon Research Trust of Ireland were kindly supplied by Dr. D.J. Piggins. The exodus of autumn descending brown trout at 2294 fish was the highest figure recorded since 1981. Smolt numbers at 4240 were low but the total juvenile output was the highest since 1982. Sea run fish numbered 1480, a slight improvement on the previous year's figure of 1325. Thus, on the numbers of sea run fish, the Burrishoole stocks would appear to have passed a low point in 1983 and to be gradually expanding again after a reduction from the mid 1970s.

THE WATERVILLE COLLECTION

In 1985 the census of Waterville sea trout was undertaken by Peter Madden of UCD and Janet O Connell of UCC. In July and August 183 fish were examined in the standard way devised for dealing with these collections.

The average weight of sea trout examined was 476g and the average fork length was 33.8cm. Scale readings and back calculation of various lengths at age demonstrated that these vary only slightly and probably not significantly from one year to another

but the age composition of the freshwater and marine phases changes considerably.

Among post smolts the mean smolt age rose from 2.13 years in 1980 to 2.46 in 1982 from which it declined to 2.28 in 1984; in 1985 the MSA stood at 2.37 years. Thus, in the period since 1980 this characteristic has been consistently higher than during the most favourable climatic conditions of the 1970s. The B type increment (73.5% of all post-smolts in 1985) was also one of the highest recorded to date.

BURRISHOOLE AND WATERVILLE

Elsewhere it has been argued that sea trout stocks in different catchments are regulated by the same climatic controls. Undoubtedly the most comprehensively monitored stock in Ireland is that in Burrishoole, Co. Mayo, where counts and detailed investigations of stock structure are carried out on an on-going basis.

Compared with Burrishoole, the census in Waterville is less complete lacking particularly counts of incoming and descending trout. But there are criteria by which the correspondence of the two stocks can be compared. Now that six consecutive years' data have been gathered from Lough Currane an initial comparison is apposite. In Fig. 1 several

characteristics of both stocks are shown.

The numbers of sea run fish in Burrishoole, during the six years, have apparently gone through a trough and are beginning to recover. According to the climatic criteria used this recovery commenced a year earlier than expected but the deficiencies of the growing season indicator are recognised.

Numbers of sea run fish in Burrishoole have been shown to reflect the output of juvenile trout to sea over a period of years and both spring descending smolts and brown trout going seawards in the autumn contribute to the production of juveniles in the same year. However, the more important of these cohorts is the smolt exodus. These fish are more robust than the brown trout of the autumn descent (and they are silvered) to salt water.

In both stocks, Burrishoole and Waterville, the important components of the stock are post-smolts (0+ sea years) and adult sea trout of .1+ years. Post-smolts (finnock) are the more numerous of these age groups. The best indication of post-smolt numbers

is the strength of the smolt exodus to sea in the spring, a proportion of these fish coming back in the summer months following.

In the case of Currane there is no way of ascertaining smolt numbers. Instead one must rely on the proportion of post-smolt in the summer catches. Because the Currane stock is relatively long lived, trout of one sea winter are well represented. In Fig. 1 the correspondence between smolt numbers in Burrishoole and the proportion of post smolts in Currane is well demonstrated.

The use of crude catch statistics to decipher stock structure is also shown in Fig. 1 where the average weight of the Currane catch varies inversely with the post-smolt content of the samples.

PAPERS AND REPORTS RECENTLY AVAILABLE

Fahy, E (1985). Marine feeding of Irish sea trout. in The biology of the sea trout (ed E.D. le Cren). Atlantic Salmon Trust, London.

A brief account of the feeding behaviour of Irish sea trout in the Atlantic and the Irish Sea.

Fahy, E. (1985). The sea trout year 1984 Fishery Leaflet No. 127: 14pp.

The predecessor of this leaflet; reviews stocks and catches in 1984.

Fahy, E (1985). Cyclic fluctuations in the abundance of trout Salmo trutta L. Arch. Hydrobiol. Suppl. 70 (3): 404-428.

An examination of natural factors likely to influence the production of sea trout; a model displaying the possible mechanism is presented.

Fahy, E. (1985). Fish kills in Ireland: an analysis of incidents in 1983 and 1984 Fishery Leaflet No. 128: 19pp.

This account of fish kills in two recent years, considers a wide range of species. Most seriously affected is Salmo trutta

Fahy, E (1985). Child of the tides: a sea trout handbook Dublin : Glendale Press 188pp.

A re-presentation of facts and figures concerning the biology and exploitation of sea trout, particularly in Ireland.

Fahy, E. (1985). Protecting finnock as a sea trout conservation measure. Salmon and Trout Magazine 230:66-69.

Examines the arguments favouring size limits in sea trout fisheries.

Fahy, E (1985). Selection of sea trout by draft nets operated by the Moy Fishery Company. A report to the North Western Regional Fisheries Board.

A report of limited circulation.
Investigates the relationship between
sea trout of different sizes/ages and draft
nets operated by the Moy Fishery
Company in Ballina, Co. Mayo.

Table 1 Sea trout captures per fishery district as reported by Fisheries Boards in 1984 and 1985. The totals are for districts reported in the two years.

Fishery District	1984	1985	% Change
Dundalk	2 702		
Drogheda	1 959	1 720	-12.2
Dublin	6 509	3 811	-41.5
Wexford	3 169	2 079	-34.4
Waterford	1 455		
Lismore	862		
Cork	700		
Kerry	627		
Limerick	1 643		
Galway		423	
Connemara	7 961	13 209	+65.9
Ballinakill	3 955	7 757	+96.1
Bangor	1 554	2 413	+55.3
Ballina	430	205	-52.3
Sligo	106	136	+28.3
Totals	25 643	31 330	+22.2

Table 2 Details of licensed rod fishing effort and sea trout catch in 1984 and 1985 from 683 licence returns from 1984 and 610 from the 1985 season.

	Ratio of sea trout fishing days to salmon fishing days		Mean weight (lb) of individual sea trout caught		Average wt. (lb) of sea trout caught per rod day	
	1984	1985	1984	1985	1984	1985
Dublin	0.51	0.18	1.23	1.19	0.05	0.34
Wexford	1.03	0.50	0.68	0.83	0.43	0.49
Waterford	0.05	0.08	1.00	0.90	0.39	0.25
Lismore	1.15	0.44	0.74	0.86	1.24	0.24
Cork	9.13	0.30	0.76	1.27	1.10	0.51
Kerry	3.10	1.45	1.37	1.30	0.73	1.40
(Currane)	3.95	5.27	1.50	1.33	1.10	1.96
Limerick	0.53	0.32	0.77	0.84	0.13	0.43
Galway	0.24	0.48	1.07	0.77	0.76	0.99
Connemara	13.20	2.12	1.13	1.16	3.48	3.06
Ballinakill	4.00	1.50	0.92	0.85	1.13	2.03
Bangor	2.30	0.90	1.00	0.85	0.82	1.70
Ballina	0.29	0.16	1.05	0.94	0.28	0.36
Sligo	1.00	0.65	1.26	1.98	0.79	0.25
Ballyshannon	3.50	0.46	0.96	0.96	0.27	0.58
Letterkenny	1.80	0.99	0.87	0.87	0.24	1.81
Dundalk	10.13	0.73	1.30	1.06	0.75	0.47
Drogheda	5.2	0.79	0.94	0.85	0.30	1.53
Averages from national totals	1.94	0.43	0.99	0.97	0.79	1.21

Table 3 Characteristics of the salmonid catch reported from four categories of rod licence from the 1985 season. Similar readings from 1984 are in brackets.

	A		B		R		P	
Sea trout								
Number	(6.0)	8.7	(3.9)	10.6	(1.4)	1.7	(6.5)	10.1
Weight (lb)	(6.0)	8.9	(3.4)	10.6	(1.5)	1.8	(9.5)	8.3
Days fishing	(6.1)	7.4	(6.4)	9.2	(1.5)	1.4	(13.9)	6.4
Salmon								
Number	(2.9)	4.5	(2.1)	3.2	(1.1)	1.1	(0.9)	1.1
Weight (lb)	(20.6)	31.4	(14.5)	20.9	(7.9)	6.8	(5.0)	7.1
Days fishing	(16.1)	19.1	(19.0)	24.7	(2.4)	2.8	(4.1)	4.3
Licences returned	(212)	161	(269)	247	(84)	70	(91)	104

Categories of licence

A. Annual, all districts £17

B. Annual, one district £ 8

R. Seven day, all districts £ 6

P. Late season, one district £ 6

Table 4 Returns from drift and draft licences for the years 1981 to 1985 (provisional) inclusive.

DRIFT NETS

	1981	1982	1983	1984	1985
Weight of salmon per licence (lb)	1015	566	1340	581	1436
Number of salmon per licence	377	83	185	92	210
Mean weight individual salmon (lb)	6.91	6.78	7.24	6.32	6.84
Weight of sea trout per licence (lb)	5.5	5.3	26.0	33.6	7.7
Number of sea trout per licence	2.0	1.6	8.4	10.2	2.1
Sea trout as % weight of salmon	0.54	0.94	1.9	5.8	0.01
Mean weight individual sea trout (lb)	2.72	3.36	3.08	3.38	3.65
Number of licences returned	230	138	57	123	146

DRAFT NETS

Weight of salmon per licence (lb)	567	362	601	399	475
Number of salmon per licence	76	54	92	60	68
Mean weight individual salmon (lb)	7.42	6.74	6.55	6.63	6.97
Weight of sea trout per licence (lb)	23.9	40.1	107.6	108.4	99.9
Number of sea trout per licence	13	26	74	56	48
Sea trout as % weight salmon	4.2	11.1	17.9	27.2	21.0
Mean weight individual sea trout (lb)	1.80	1.55	1.45	1.95	2.07
Number of licences returned	185	222	101	129	110

Table 5: Some details of specimen sea trout caught in 1985

Captor	Place	Freshwater years	Sea years (including spawning marks)
John Cahill	Currane	2	5
James Donnelly	Currane	2	5/6*
Rafat Jah	Currane	2	6
Martin Folan	Carrigh Lake, Connemara	2	6
Frank Barrett	Casla River	Not examined	
R.G. Walters	Currane	2	6
M. Lane	Currane	2	6
R. Rudd	Currane	2	6
Stephen Fitzpatrick	Elly Bay, Belmullet	2	4
Lydia Manzel	Currane	2	6
P.M. Owens	Currane	3	5
Mean		2.1	5.6
Range		2-3	4-6
Standard deviation		0.316	0.685

*either interpretation

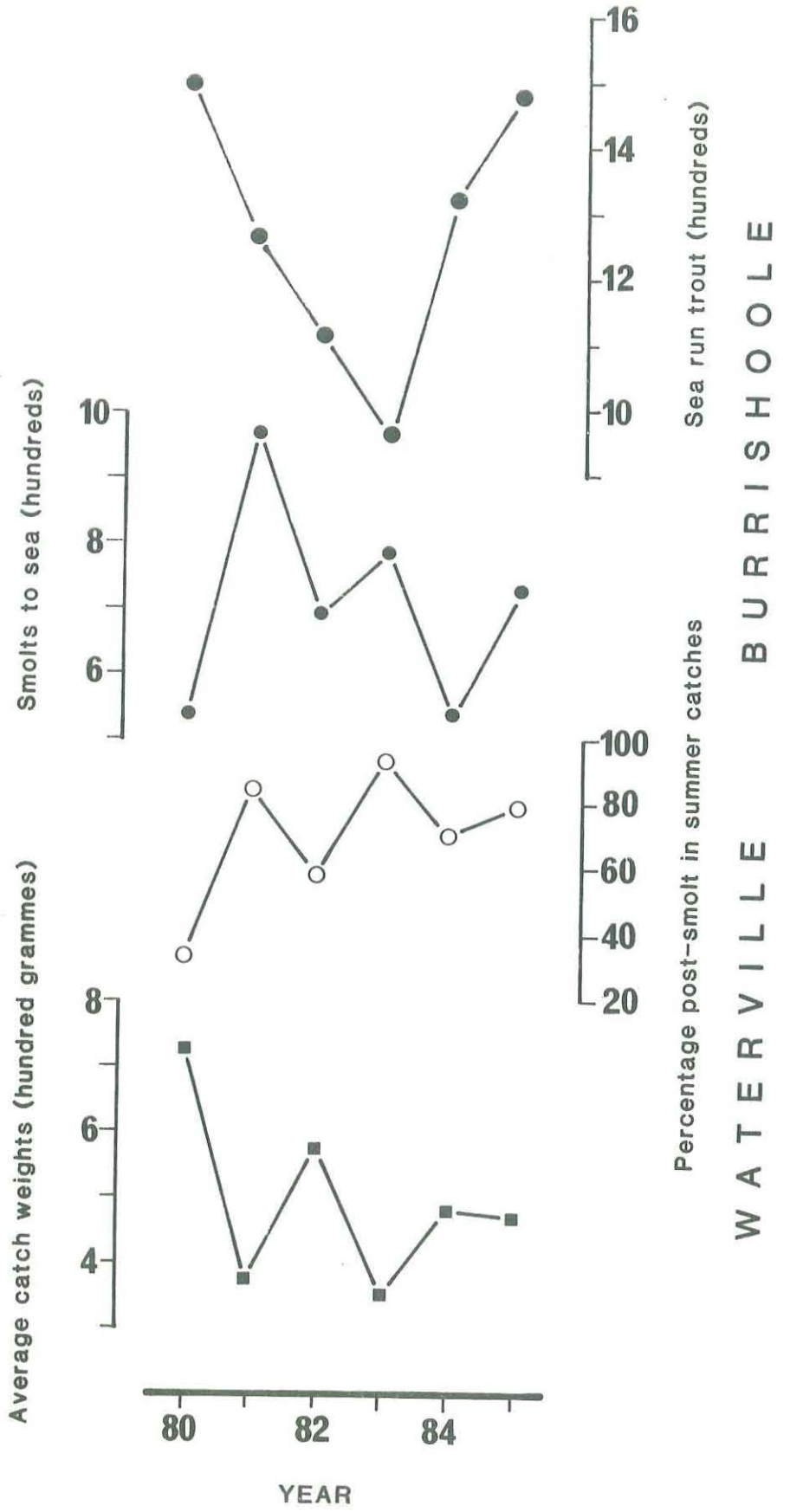

Fig. 1 A comparison of some characteristics of two sea trout stocks. From the top: Burrishoole fishery, Numbers of sea run trout; Numbers of smolts to sea; Currane fishery, Percentage post smolts in summer fishery; Average catch weight.